

## PERSONAL INFORMATION

## Andreea Groza

📍 National Institute for Laser, Plasma and Radiation Physics (NILPRP), Low Temperature Plasma Department, 409 Atomistilor, PO Box MG-36, 077125 Bucharest-Magurele (Romania)

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## WORK EXPERIENCE

October 2020-April 2021

Head of Low Temperature Plasma Laboratory

2018 - PRESENT

Member of Scientific Council of NILPRP

2016 - PRESENT

**Scientific Research II degree**

National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele (Romania)

- Research activities by leading the following experiments:

- generation of bio ceramic thin films by magnetron sputtering deposition technique on polymeric and metallic substrates for bio-medical applications;

- characterization of magnetron sputtering discharges by optical emission spectroscopy and mass spectrometry

- plasma sources: design and spectral characterization

- diagnosis of pulsed plasmas interacting with materials;

- spectral and morphology analysis of thin layers by: FTIR spectroscopy, GDOES spectroscopy, GD-TOF-MS mass spectrometry; SEM microscopy, profilometry, XPS photoelectron spectroscopy, EDS spectroscopy

- electron and proton spectra distribution of protons and electrons produced in high power laser-solid target experiments: experiments and simulations

- calibration of passive nuclear detectors and dosimetry measurements.

electromagnetic pulse measurements in high power laser-thin solid target interaction experiments;

- signal processing of electromagnetic pulses for their spectral analysis.

2006–2016

**Scientific Researcher III degree**

National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele (Romania)

- Research activities by leading the following experiments: generation of thin polymeric layers by atmospheric pressure discharges; diagnosis of pulsed plasmas interacting with materials; characterization of thin layers by spectral methods: FTIR spectroscopy, GDOES spectroscopy, GD-TOF-MS mass spectrometry; SEM microscopy, profilometry, XPS photoelectron spectroscopy.

- Characterization of pulsed discharges in innovative designs for GD-TOF-MS type mass spectrometry analysis

- Spectral diagnosis of pulsed plasmas produced in hollow cathode discharge

- high-power laser experiments – solid and gaseous targets experiments for electrons and protons acceleration at CETAL -PW class laser, NILPRP, within ROSA project 53/2013 - Center of competence - Laser-Plasma Acceleration of Particles for Radiation Hardness Testing

2001–2006

**Scientific Researcher**

National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele (Romania)

- synthesis of polymeric layers in atmospheric pressure discharges

- FTIR spectroscopy and optical microscopy characterization of polymeric materials

- plasm-chemical processes in pulsed discharges

- spectral and electrical characterization of hollow cathode pulsed discharges at low pressure

1998–2001

### Research Assistant

National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele (Romania)

- electrical characterization of transient discharges produced at atmospheric pressure
- plasm-chemical processes in pulsed discharges
- spectral and electrical characterization of filamentary discharges for X-Ray production

## EDUCATION AND TRAINING

1999–2006

### PhD in Physics

University of Bucharest, Faculty of Physics, Bucharest (Romania)

Supervisor: Acad. Prof.Dr. Ioan Iovit Popescu

Transient plasma interaction with dielectrics; plasma characterization by electrical and spectral method; plasm-chemistry process; polymer layer generation in atmospheric pressure discharges; spectral and optical analysis methods.

1998–1999

### Master in Physics

University of Bucharest, Faculty of Physics, Bucharest (Romania)

Specialization in optics, lasers, spectroscopy and plasma physics

1993–1998

### BSC in Physics

University of Bucharest, Faculty of Physics, Bucharest (Romania)

Specialization in optics, lasers, spectroscopy and plasma physics

## PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C1	C2
French	B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](#)

Communication skills Good communication skills gained through the scientific interaction with the researcher from different countries and in international and national scientific collaborations.

Organisational / managerial skills

- Project manager of a CNCSIS project 1319/2008 " New techniques of surface polymerization in electrical discharges for synthesis and diagnosis of thin polymeric layers", 2009-2011
- Responsible partner from NILPRP in the project: 23PCCDI/2018: "Improving the quality of life by developing new technologies based on efficient nanoparticles in water and soil decontamination", ID code: PN-III-P1-1.2-PCCDI2017-0134
- Responsible of scientific theme: "Interface nanomatrix layers for increasing the adhesion of deposited thin films" PN 16 47 01 02/2016 within the project "Synthesis, processing and characterization of micro- and nano-structures and nanomaterials obtained by laser, plasma

or radiation techniques, "Core project 4N/09.09. 2016: Advanced research on Laser-Plasma-Radiation-Space-LAPLAS IV

- Responsible of scientific theme: "Depositions of ceramic thin layers with biomedical applications by radio frequency magnetron sputtering technique" within the project Synthesis, processing and characterization of micro- and nano-structures and nanomaterials obtained by laser, plasma or radiation techniques, Core project PN 19150101/2019.
- Responsible of 1 workpackage in the project "Laser Plasma Accelerators as tools for Radiation Hardness Assessment (RHA) Studies and Tests in support of ESA space missions", European Space Agency (ESA) project, reference number 2271/ 06. 07. 2017 INFLPR, 2017-2019.
- Responsible partner from in the project 488PED/2020 "Technological innovation for nano-sized and uniform structures through enhanced control of the electrospinning process", PN-III-P 2-2.1-PED-2019-4021.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Independent user	Basic user	Basic user

Digital competences - Self-assessment grid

ADDITIONAL INFORMATION

Publications (45 ISI scientific publications)

List of 10 publications:

1. *D. B. Dreghici, B. Butoi, D. Predoi, S. L. Iconaru, O. Stoican, A. Groza*, Chitosan–Hydroxyapatite Composite Layers Generated in Radio Frequency Magnetron Sputtering Discharge: From Plasma to Structural and Morphological Analysis of Layers, *Polymers*, 12(12), 3065, 2020;
2. *A. Groza, A. Chiroasca, E. Stancu, B. Butoi, M. Serbanescu, D. B. Dreghici, M. Ganciu*, Assessment of Angular Spectral Distributions of Laser Accelerated Particles for Simulation of Radiation Dose Map in Target Normal Sheath Acceleration Regime of High Power Laser-Thin Solid Target Interaction-Comparison with Experiments, *APPLIED SCIENCES-BASEL*, Volume: 10 Issue: 12, Article Number: 4390, 2020
3. *A. Groza, M. Serbanescu, B. Butoi, E. Stancu, M. Straticiuc., I. Burducea, A. Balan, A. Chiroasca, B. Mihalcea, M. Ganciu*, Advances in Spectral Distribution Assessment of Laser Accelerated Protons using Multilayer CR-39 Detectors, *Applied Sciences*, 9, 10, Article Number: 2052, 2019;
4. *B. Butoi, A. Groza, P. Dinca, A. Balan, V. Barna*, "Morphological and Structural Analysis of Polyaniline and Poly(o-anisidine) Layers Generated in a DC Glow Discharge Plasma by Using an Oblique Angle Electrode Deposition Configuration" *Polymers*, 9, 732, 2017;
5. *A. Groza, C.S. Ciobanu, C.L. Popa, S.L. Iconaru, P. Chapon, C. Luculescu, M. Ganciu, D. Predoi*, „Structural properties and antifungal activity against *Candida albicans* biofilm of different composite layers based on Ag/Zn doped hydroxyapatite-polydimethylsiloxanes", *Polymers* 8, 131, 2016;
6. *C. S. Ciobanu, A. Groza, S. L. Iconaru, C. L. Popa, P. Chapon, M. C. Chifiriuc, R. Hristu, G. A. Stanciu, C. C. Negrila, R. V. Ghita, M. Ganciu, D. Predoi*, "Antimicrobial Activity Evaluation on Silver Doped Hydroxyapatite/Polydimethylsiloxane Composite Layer", *BioMed Research International*, vol. 2015, Article ID 926513, 13 pages, 2015;
7. *C. L. Popa, A. Groza, P. Chapon, C. S. Ciobanu, R. V. Ghita, R. Trusca, M. Ganciu, D. Predoi*, "Physicochemical analysis of the polydimethylsiloxane interlayer influence on a hydroxyapatite doped with silver coating" *Journal of Nanomaterials*, vol.2015 Article ID 250617, 2015;
8. *A. Groza, A. Surmeian, C. Diplasu, C. Luculescu, P. Chapon, A. Tempez, M. Ganciu*, "Physico-chemical processes occurring during polymerization of liquid polydimethylsiloxane films on metal substrates under atmospheric pressure air corona discharges", *Surface and Coatings*

Technology, vol.212, pag. 145-151, 2012;

9. C. Diplasu, A. Surmeian, **A. Groza**, M. Ganciu, „Synchronous plasma enhancement in RF-driven plasma source for ion implantation", Surface and Coatings Technology, vol.203, no.19, pag. 2858-2862, 2009;

10. A. Surmeian, C. Diplasu, **A. Groza**, M. Ganciu, P. Belenguer, A. Tempez, P. Chapon "Amplification of noble gas ion lines in the afterglow of a pulsed hollow cathode discharge and possible benefit for analytical glow discharge mass spectrometry", Analytical and Bioanalytical Chemistry, vol.388, no.8, pag. 1625-1629, 2007.

#### International Patents

1. *Mihai Ganciu-Petcu, Constantin Diplasu, Agavni Surmeian, **Andreea Groza**, Agnes Tempez, Patrick Chapon, Michel Casares, Olivier Rogerieux*, "Source magnétron pour spectromètre à décharge luminescente", French Patent Application 0850055, 04 January 2008, International Application: PCT/FR2009/05008, French Patent FR2926161 (B1) 2012-02-10, FR2926161-A1, WO2009130424-A1, FR2926161-B1

2. *Mihai Ganciu-Petcu, M. Piso, O. Stoican, B. Mihalcea, C. Diplasu, O. Marghitu, A. Julea, A. Surmeian, **A. Groza**, R. Dabu, I. Morjan*, "System for testing e.g. components, for particle generation and acceleration, has measuring instruments used to achieve calibration by determining intensity, energy, space distribution and nature of particles made of fluxes", WO2015030619-A1, WO2015030619-A4

#### National Patents

1. *O. Stoican, **A. Groza**, M. Ganciu*, Storing system for micro and nano particles using dielectric containers and capillary tubes, RO129406-A2/2014, granted in 2021, patent number 129406

2. *M. Ganciu, O. Stoican, **A. Groza**, N. Pavel, M. Croitoru, A. Marcu*, Combined electric-laser system for controlling electric discharges, nr. A/01123/2018 OSIM, granted in 2021, patent number 133688

3. *M. Ganciu, M.I. Piso, O. Stoican, O. Marghitu, R. Dabu, A. Julea, A. Surmeian, B. Mihalcea, **A. Groza**, C. Diplasu, I. Morjan*, "Testing process for complex systems and components using pulsed and synchronized flows of laser-accelerated particles, RO130134-A2/2015,

4. *T. Lucian, M. Ganciu Petcu, O. S. Stoican, I. Barbut, B. Butoi, O. B. Danila, P. Dinca, C. Diplasu, **A. Groza**, B.V. Mihalcea, A. Surmeian*, "System for detecting ionizing radiation, in real time, with electromagnetic noise protection" RO131900 - A2/ 2017

5. *M. Ganciu, O. Stoican, A. Marcu, B. Butoi, M. Serbanescu, B. Mihalcea, **A. Groza**, C. Diplasu, P. Dinca, A. Surmeian*, Ultrafast electromagnetic pulse generator for simulating electromagnetic pulses associated with the interaction between high-power laser radiation and matter, RO 132404-A2/2018

#### Invited lectures at International Conferences

1. *M. Ganciu, V. Zoita, **A. Groza**, A. Surmeian, B. Mandache, B. Mihailescu, F. Gherendi, Th. Julea, I.I. Popescu* "X ray sources for isomers triggering studies" Second International Workshop on Induced Gamma Emission, Telluride (Colorado), 30 May-1 June, 2001

2. *N. Tuccitto, I. Delfanti, A. Licciardello, C. Diplasu, A. Surmeian, **A. Groza**, M. Ganciu, P. Berenguer*, "Ionization Processes and Applications of Pulsed r.f.-Glow Discharge Mass Spectrometry and Comparison with Optical Emission Spectroscopy" Winter Conference on Plasma Spectrochemistry, January 2008, Temecula USA

3. *R. A. Vasilache, N. Verga, **A. Groza**, A. Surmeian, C. Diplasu, M. Ganciu*, "Non Standard Hadronic Therapy vs. Highly Conformal Gamma Therapy based on the Use of the Compton Gamma Back Scattering Source to be Developed within the Project ELI-NP", ELI Workshop 10-12 March 2011 Bucharest Romania

#### Participation to International Projects

1. EOARD USA AIR FORCE "Fast X-Ray source tightly coupled with targets for isomers triggering", 2000-2001 – project manager M. Ganciu-Petcu, key personnel A. Groza

2. European Project STREP FP6-2004-T1-4. "New Elemental and Molecular Depth Profiling Analysis of Advanced Materials by Modulated Radio Frequency Glow Discharge Time of Flight Mass Spectrometry", 01-09-2006 - 01-09-2009 – Romanian project manager M. Ganciu-Petcu, key personnel, A. Groza

3. Feasibility Study for the Use of the Romanian Cetal Infrastructure – European Space Agency (ESA) Contract 4000111242/14/NL/Cbi/ 23.06.2014– project manager B. Mihalcea, key personnel A. Groza

4. Laser Plasma Accelerators as tools for Radiation Hardness Assessment (RHA) Studies and Tests in support of ESA space missions, European Space Agency (ESA) project, reference number 2271/06.07.2017 INFLPR, 2017-2019, project manager B.Mihalcea, responsible of the experimental work package A.Groza

Conferences 74 papers presentation at international conferences

Honours and awards Gold medal at Geneva 2016 for the patent *A. Popescu, A. Surmeian, C. Diplasu, D. Savastru, A. Groza, M. Tautan, D. Tenciu, S. Miclos, M. Ganciu*, Method and device for mass spectrometry using pulsed laser", Romanian patent application RO130531-A2/2015.

Memberships Member of the Romanian Society of Hadronotherapy

Hirsh index 12

Citations 301 (on Web of Science)